and strategies than of affirmative attempts to maintain universal service.[14] New entrants will also be able to offer these same services and to generate revenues which will also be available to the new entrant to help it to compete with the LEC's low dial tone service rates. Accordingly, new entrants should not be required to offset or replace any losses of LEC vertical service revenues that may result from their entry into the local market.

Universal service policy should seek to minimize the size of universal service funding consistent with maintaining universal service goals

As a general matter, most of the existing revenue sources that are used for funding universal service are either not adversely affected by local competition (e.g., yellow pages) or will continue to be available to new entrants to support rate design strategies comparable to those employed by incumbent LECs (e.g., access charges, intraLATA toll, and vertical features). Thus, internal pricing policies that permit the LEC to offer affordable entry level basic service are, and should continue to be, within its domain. As such, the overall rate design goal of affordable universal service can and will continue to be met in a competitive marketplace. The extent of any affirmative measures are thus only required for, and should be limited to, two principal areas:

(1) Financial support for "lifeline" services furnished to targeted low-income households; and

(2) Financial support for "high cost" exchanges to the extent necessary to bring the average total monthly bill down to an "affordable" level.

Moreover, as we discuss below, while new carriers have a responsibility to contribute to these support mechanisms, they must also be permitted to draw from the fund where they are themselves able to serve high-cost areas and low-income subscribers.

The scope of universal service should be carefully defined

The efficacy of a universal service policy should be measured both in terms of the *penetration* of basic services and the *availability* of specific telecommunications capabilities. The first step in establishing a universal service policy is to define the scope of the basic services that should be provided on a ubiquitous basis. Too narrow a definition may leave some customers in high-cost

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[14] In 1990, for example, the California PUC determined that touch tone service should be included within the basic service offering for all residential and business subscribers. CPUC Decision No. 90-11-058, *op. cit.* footnote 5. New York is in the process of transitioning to this structure. In Israel (which, like the US, has a strong commitment to achieving universal service), the telephone company (Bezeq) includes tone dialing and a number of custom calling features like call waiting within the scope of its basic service offering. That LECs in the US have elected to price vertical service features far in excess of cost is thus not *per se* a universal service issue.

areas and low-income customers without basic telecommunications services. On the other hand, too broad a definition will cause the level of subsidy required to be greatly inflated, a subsidy whose cost is borne by all other consumers. Moreover, it is probable that a higher than necessary subsidy requirement will be relatively more burdensome to new entrants, and will thus have a negative impact upon the viability of competition.

One of the most important criteria in determining an appropriate scope of universal service is *customer need or demand* for the service or capability, which can be measured by the level of subscription and whether the service or capability would be generally available and affordable without government action. The marketplace should guide the determination of an appropriate definition of universal service.

Before a service can be considered "basic" for the limited group of rural or low-income customers who, because of cost to serve or limited financial means, are not able to afford the service at prevailing prices, it must first be shown that a substantial majority of other consumers would be willing to purchase the service at a reasonable price. Any expansion of the universal service concept that is mandated in a manner not consistent with such actual consumer demand would be inefficient and would effectively require a subsidy to all customers irrespective of need, financial or otherwise.

The *scope* of universal service has two elements. One sees service from the end user's perspective; that is, what minimum service should be encompassed within the standard, basic offering. The other concerns the societal goal of assuring that all citizens can participate in the public telecommunications network for social and business contact. From the end user's perspective, we believe the scope of universal service should encompass a "voice grade" access line, providing access to local and toll calling, tone dialing, access to emergency (e.g. 911) and assistance (e.g., directory and operator) services, a directory listing, privacy protection, and statewide relay services. It would also be appropriate to include some base level of local usage within the definition of basic service, as the utility of access does not depend exclusively upon the ability to receive incoming calls.[15] Looking to the future, great care should be taken in expanding the concept of universal service beyond this base level. If, for example, there continue to be problems in achieving ubiquitous deployment of existing basic services, policymakers should give this priority before looking to extend the scope of universal service beyond its present limits. From a societal perspective, universal service should encompass all of the above *plus* open access to the existing public switched networks by competitive providers of local exchange service so that the

[15] This does not imply flat rate service as a universal service requirement. Measured service packages with certain call allowances would meet such a requirement.

goal of providing the people of the United States "with adequate facilities at reasonable charges"[16] can be achieved efficiently, within a dynamic, competitive marketplace.

Only rates that would exceed an "affordability threshold" should be eligible for universal service funding support

The fact that a particular community may be costly to serve relative to some broad national or state average does not *per se* imply that the rates to be charged to customers in those areas would be unaffordable. In fact, the "affordability" of basic local telephone service must be measured in terms of broad economic conditions pertaining to each community, and certainly not in terms of "average" pricing conditions. As a general matter, the extent of universal service support should be limited to those areas in which local conditions would tend to make the service "unaffordable" without some general funding support.

Moreover, the affordability threshold is not a static value, but will change with inflationary increases in the overall price level of other goods and services in the economy, such as that which is measured by the Consumer Price Index (CPI). At the same time, the real *costs* of producing telephone service are actually decreasing due to the combined effects of competition and productivity growth in the telecommunications sector. Consequently, over time, successively larger portions of the total range of residential access price levels will fall under the affordability threshold. Thus, the "affordability" of basic residential network access, as discussed in the next section, must be measured and periodically adjusted with respect to prevailing price levels for other goods and services.

III. Affordability of basic telephone service

Residential subscribership levels have increased steadily

While there is widespread agreement that the prices charged for basic residential access (the universal service baseline) must be "affordable," there is no generally accepted standard for determining "affordability" or for measuring the degree to which this aspect of the universal service goal is (or is not) being satisfied. The price of basic residential access, expressed in real terms, has been declining steadily for many years. Beginning in 1989, the year in which the residential Subscriber Line Charge (SLC) transition was completed, basic residential access charges decreased

[16] *Communications Act of 1934*, Title 1, Section 1.

by roughly 2% annually through 1993.[17] At the same time, residential penetration rates in the US,

which are the highest in the world, have increased steadily, from 91.6% in 1984 to 94.2% in 1993.[18] FCC tracking reports confirm that residential penetration rates have been virtually unaffected by such landmark events and policy initiatives as the break-up of the former Bell System, the introduction of CPE and long distance competition, and the various state and federal rate rebalancing initiatives adopted as part of access charge and other accommodations to the competitive long distance marketplace.[19] Moreover, it has also been shown that there is very little, if any, direct linkage between the specific price level of residential access and the penetration rate characteristic of a particular jurisdiction. While there is some variation in penetration from state to state, factors other than price appear to be the source of these differences.[20]

The high rate of acceptance of prevailing prices and the high rate of demand for basic access confirm that the prevailing price levels and pricing policies applicable for the residential universal service baseline are indisputably well within the "affordability" range. Moreover, the absence of any direct linkage between price and demand for the overwhelming majority of the residential population suggests that even prices at the high end of the existing range[21] will still fully satisfy the affordability requirement.

To the limited extent that price changes may be driven by local competition, this does not make service "unaffordable" nor does it jeopardize universal service

One of the most interesting, if not surprising, aspects of the current discussion of universal service is that we continue to hear that it may be threatened by competition. As the scope of the telephone monopoly was being eroded over the past three decades, with competition being introduced into customer premises equipment, long distance services, and other areas, the

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[17] FCC Common Carrier Bureau, *Trends in Telephone Service*, February, 1995, Table 5.

[18] *Id.*, Table 2.

[19] *Id.*

[20] Studies of the demand for basic residential exchange access have confirmed that this demand is highly price-inelastic. *See*, e.g., L. D. Taylor, *Telecommunications Demand in Theory and Practice* (Boston: Kluwer Academic Publishers, 1994), at 259. The exception may be for some low-income households, for whom special treatment, discussed below, will be required so as to assure and to maintain their continued connectivity to the public network. In a recent order, the FCC invited comment regarding this issue. *In the Matter of Amendment of Part 36 of the Commission's Rules and Establishment of a Joint Board*, FCC Docket No. 80-286, *Notice of Proposed Rulemaking and Notice of Inquiry*, July 13, 1995, at 15.

[21] Residential exchange rates vary widely both within and across jurisdictions. Excluding extraordinary cases (such as those requiring special construction or in small, rural Independent LEC exchanges), the highest monthly rates for basic residential access/local flat-rate usage is in the $30 range. Lande, James L., *FCC Reference Book: Rates, Price Indexes, and Household Expenditures for Telephone Service*, July 1994, Appendix 4.

incumbent monopolies were heard at each turn to warn of the (then) imminent threat to universal service. As they sought to portray it, CPE and long distance were sources of large subsidy support; take that away, local rates go up, and a large-scale "drop-off" in residential connectivity will result. Today's scenario is essentially the same: new local exchange service competitors will "cream-skim" by entering only the most profitable market areas, forcing LECs to lower their prices in those markets, thereby eroding subsidy support for less desirable (i.e., higher cost, lower profit) communities. This will happen, the LECs insist, because they (and they alone) are required to apply broadly averaged prices, thus inviting competitors to "cherry pick" precisely those exchanges and customers whose cost-to-serve falls below the "average." These same "cream skimming" predictions were advanced with respect to long distance competitors: because of the high cost of serving customers located far from an IXC's point of presence, only customers located close to urban centers were expected to benefit from competition, forcing "geographic deaveraging" of long distance rates. But contrary to these fears and speculations, the new IXCs did not "specialize" in urban centers, and geographic rate deaveraging never happened.[22] One reason for this outcome was that, while certain costs of serving non-urban areas may have been above average, the substantial economies of scale and scope inherent in IXC networks made the *marginal cost* of serving such customers extremely low, sufficiently below average as to offset the nominal above-average access charges and other costs that the IXC might have been required to incur.

Significantly, when viewed in the aggregate, LEC rates are distinctly not "broadly averaged" across all areas today. Bell company operating territories generally include the most desirable communities, leaving a disproportionate share of rural, low-density, high-cost exchanges to the independent LECs. Customers located outside of "base rate areas" in rural exchanges are often required to pay additional mileage charges and in some cases to fund construction of their access lines, and are frequently forced to accept multiparty service. While pre-divestiture settlements and post-divestiture access charge pools have narrowed the range of local rate levels, geographic and other forms of rate deaveraging were present long before anyone spoke of competition in the local telephone market. Moreover, because customers in rural areas typically have a much greater need to place intraLATA toll calls to nearby cities and towns not included within their local calling areas than do customers located in large metropolitan areas, the rural customer's total phone bill has traditionally been higher than for the urban subscriber.[23]

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[22] Indeed, even *distance* is no longer a significant factor in domestic long distance pricing. As the importance of distance has diminished as a cost driver (due to the widespread use of low-cost, high-capacity transport technologies), long distance rates have become largely "postalized," i.e., priced at a uniform level irrespective of the distance involved. Many residential and most business long distance pricing "plans" have eliminated distance as a rate element; like first class mail, a 30-mile phone call from New York City to Stamford, Connecticut is subject to the same charge as a 5,000-mile call from New York City to Honolulu.

[23] Indeed, rural customers have benefitted disproportionately from toll/local rate rebalancing programs implemented at the state level, because they - and not their urban counterparts - are typically the heaviest users of intraLATA toll service. Even where the nominal price of the basic dial tone line may be subject to increase in communities that are not initially targeted for entry by new local carriers, the combined effect of rate rebalancing together with whatever geographic rate deaveraging is required may still result in a total bill that is no greater than it was in the past. And even where the total bill does increase,

Incumbent LECs contend that the selective entry of local competition will force them to either deaverage their local rates or exit the high-cost exchanges altogether.[24] The need for such actions is grossly exaggerated by the LECs: First, as with interexchange services, the presence of substantial scale and scope economies makes the *marginal cost* of continuing to serve so-called "high-cost" areas far less than the *average cost* that is typically used as a benchmark for specific high cost funding. Under these circumstances, it would make no economic sense for the LEC to withdraw from such areas since they would continue to be profitable when considered on an incremental, forward-looking basis. Second, the availability of several new technologies can materially reduce the forward-looking cost of serving traditionally high-cost areas, such that if the incumbent is not willing to acquire the new, lower cost resources, another supplier should be afforded the opportunity to so do.

Only rates that exceed an "affordability benchmark" should be eligible for a general universal service subsidy

Geographic rate deaveraging, if and to the extent it occurs at all, is likely to be largely a transitional condition that will erode as the scope of local competition is expanded. Initially, however, there may be a strong public policy basis to ensure that where such deaveraging takes place the overall service remains "affordable." This can be accomplished by defining and maintaining an *affordability benchmark* that would be used to establish the maximum rate that the average residential subscriber in any individual exchange would be required to pay.

The affordability benchmark would represent the upper end of the range of total charges for "local" services that individual residential subscribers within a given (state) jurisdiction would be expected to pay without any specific support. Service would be deemed "affordable" if its price is set at or below the highest rate level applicable for any exchange within a given jurisdiction for which residential penetration is within five percentage points of the jurisdiction-wide average.[25] The benchmark would be computed by identifying the highest rate currently being charged by the

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such an increase does not in and of itself render the service "unaffordable." As described in more detail below, policymakers should establish an "affordability benchmark" as the maximum rate that the average residential subscriber would be required to pay. This "benchmark" would form the basis of identifying and quantifying specific support requirements.

[24] Expansion of existing geographically-based pricing is more likely to be initiated by incumbent LECs than by new entrants, who will be compelled to offer and to maintain simplified pricing structures. Indeed, there are any number of highly competitive markets in which such deaveraging does not occur.

[25] "Affordability" for this purpose would be measured over a "basket" of services representing the average demand by residential subscribers in the jurisdiction. As such, "affordability" is not materially affected by rate structure differences among individual exchanges or local operating companies, or by subsequent revenue-neutral rate rebalancing that may occur. Such rate rebalancing might, for example, affect the *minimum* monthly rate for a residential dial tone access line without any usage or vertical services; however, if dial tone line rates are increased and usage rates are correspondingly decreased, the price for the "basket" will not materially change.

dominant LEC for basic residential dial tone access, local usage, touch tone, vertical features, and intraLATA toll calling within a 40-mile radius.[26] Corresponding evaluations of the total monthly bill would be made for individual exchanges that are considered to exhibit "high cost" characteristics.[27] Where the per-line cost[28] of serving an exchange exceeds the affordability benchmark, customers would be charged the benchmark rate, and the excess would be drawn from the universal service fund. Only those exchanges whose costs exceed the benchmark would be eligible for any universal service subsidy support.

The affordability benchmark would be adjusted annually by the Consumer Price Index (CPI) and all exchanges that had previously exceeded the benchmark would be reevaluated, with their rate levels adjusted to the new benchmark or to their cost, whichever is (then) lower. Exchanges whose costs no longer exceeded the (updated) affordability benchmark would no longer qualify for USF support. Where the cost still exceeds the revised benchmark, only the (now reduced) excess would be drawn as high cost support.

In addition to adjusting the affordability benchmark to keep pace with economy-wide inflation, costs for individual exchanges are likely to decline over time as competition and new technology are introduced into individual areas that had (up to then) qualified for high cost support. In such an event, the cost reductions would work to bring some of the (formerly) high cost areas closer to or perhaps below the affordability benchmark, thereby reducing the amount of required support, or removing them from eligibility for support altogether.

This process assures that the aggregate size of the universal service funding mechanism will be kept to an absolute minimum at the outset and will be further reduced over time. By limiting funding to only those exchanges whose costs exceed the highest BOC rates in a given jurisdiction, its size at the outset will be minimized. Moreover, by annually readjusting the benchmark and reevaluating the individual exchanges relative to the new benchmark so as to capture the effects of

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[26] The inclusion of these "short distance" toll calls within the "basket" serves several purposes. First, it normalizes all areas with respect to differences in the geographic extent of local calling. Most local calling areas in the US extend to distances of 40 miles or less, although there are certain notable exceptions involving distances of up to 100 miles or more. In areas with extensive local calling (e.g., Atlanta, New York City, Denver, Honolulu), there would be little or no "short distance" toll use within the basket; where the local calling area is small (e.g., Los Angeles, San Francisco), a fairly large intraLATA "short distance" toll component would apply. Second, inclusion of these toll charges will capture the salutary effects of rate rebalancing upon remote, high-cost areas where toll calling tends to be highest. So even where the price of the basic dial tone line increases, it is often offset by substantial decreases in the toll service component of the total monthly bill.

[27] The "affordability benchmark" determined in this manner would be highly conservative, in that consumers (other than those in the low-income category) may well consider price levels in excess of the highest in the jurisdiction to still be "affordable." Indeed, prices for other utilities, such as electricity and natural gas, have increased by far greater dollar and percentage amounts than that for telephone service, yet these services are still considered to be "affordable" by most regulators and policymakers.

[28] For our present purposes, "cost" need not be determined directly for each high cost area. Instead, a "cost proxy" approach, based upon standardized cost-drivers, may be utilized. This method, which has recently been proposed by the FCC, is discussed in more detail below.

evolving competition and technology, the need for ongoing high-cost support will be continually reduced and perhaps eventually eliminated altogether.

IV. Targeting universal service support to those who need it most

Targeted support mechanisms will achieve universal service goals more efficiently and effectively than through the continued application of broad-based support policies

Universal service programs generally fall into two categories: *General support mechanisms* and *Targeted subsidies*. A *general* support mechanism is one that flows funding to a designated "benefitted" service regardless of the financial needs or ability to pay of the communities or individuals being served. Basic residential "dial tone" connectivity is probably the primary example of the application of this type of general support mechanism, because the historic (and present) use of toll and access charge revenues to permit below-cost pricing of residential access is applied to all households, rich or poor, urban or rural. The vast majority of the billions of dollars of universal service support that the LECs allege are necessary are directly tied to the residual pricing of basic local exchange services. This historic relationship raises two points. First, the gradual re-alignment of a LEC's *intrastate* telecommunications rates with the underlying costs can assist state regulators in identifying the need, if any, for universal service support.[29] Moreover, as the experience in Massachusetts demonstrates, a carefully considered rebalancing of rates with their underlying costs will not jeopardize the achievement of universal service.[30] Second, rate rebalancing, without an examination of the underlying LEC costs, can lead to bloated claims of what the residential rate would need to be to cover its costs - that is, if the "revenue requirement" of the LEC encompasses costs (such as broadband infrastructure costs) that should be assigned to the LEC's competitive services but that the LEC is seeking to assign (under the guise of "common" costs) to basic telephony services, the residential rate will be inflated. An inflated residential rate will either result in inflated universal service support or will unnecessarily deter regulators from reasonable rate rebalancing.

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[29] Rate rebalancing which involves services outside the "affordability basket" can be accomplished prior to the establishment of the affordability benchmark, or used to adjust the benchmark at a future point.

[30] In Massachusetts, state regulators found that "there has been no statistically significant change in the Massachusetts telephone service penetration rates in the years 1989 to 1992... Thus, we find that through 1992 the transition to cost-based rates has not negatively impacted universal service, and the current proposed increase is unlikely to have an adverse impact on universal service." Massachusetts D.P.U. 93-125, *NYNEX*, January 13, 1994 at 58 (footnote omitted).

Targeted support programs serve defined classes of communities and individuals. The FCC's High Cost Fund, for example, supports the provision of basic network connectivity in those areas in which there are unique conditions that tend to increase costs. Such conditions may include, for example, extremely low population density, difficult terrain, remote locations, etc. So-called

"lifeline" assistance programs are also targeted subsidies, focusing upon low-income households by providing reduced installation and recurring rates for network connectivity and, in some cases, a base level of network usage. Targeted subsidies are a far more efficient and effective means of achieving universal service goals than are general support programs, because with targeting the same degree of connectivity and ubiquity can be achieved at a small fraction of the cost. As a consequence, services that are burdened by the need to provide subsidy funding can be priced on a more economic, cost-driven basis, and new entrants will not be confronted with burdensome demands that they support general universal service programs.

But even targeted subsidy programs can have the undesirable effect of rewarding inefficiencies on the part of the incumbent provider. Is a so-called "high cost" exchange in that condition because of unique operating circumstances, or because the LEC is simply not furnishing the service in an efficient manner? It may be difficult to determine which is the case, and there is a risk that the affected communities will suffer if, for example, high cost support is arbitrarily curtailed. The problem is further compounded by the fact that, by the very nature of many "high cost" areas, these may be among the least likely to attract competitive entry on a multi-provider basis in the near future. On the other hand, the availability of new wireless and high-capacity transport technologies may be particularly beneficial when applied to low-density areas. As such, there is a real risk that perpetuation of the high cost support *status quo* could work to discourage and thereby suppress the introduction of these methods of serving high-cost communities.

Policymakers should remain skeptical of LEC claims for "high cost" support

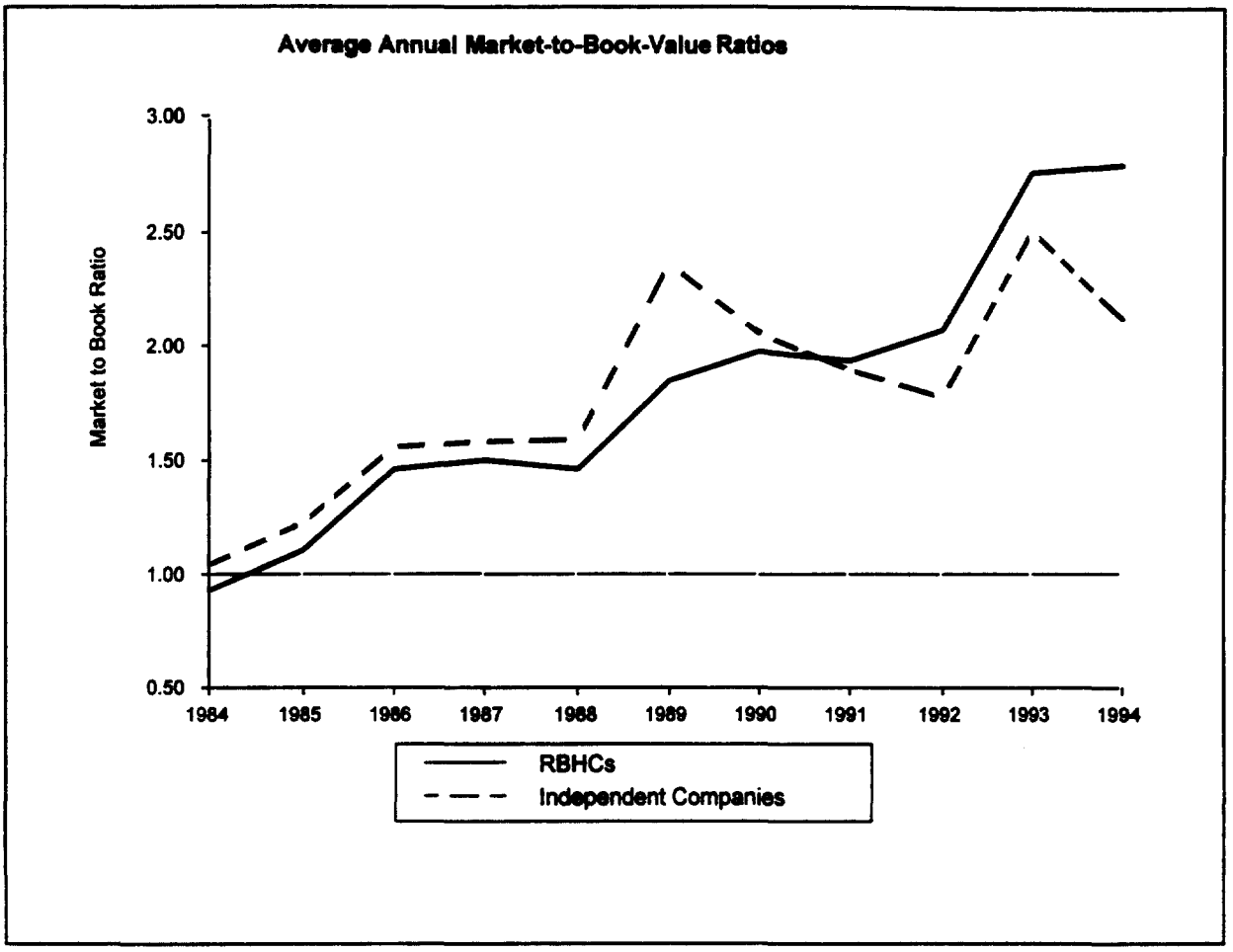
Universal service fund support for high-cost areas should not be available to incumbent LECs who are no longer subject to rate of return regulation

Under the traditional model for regulating LECs and other "public utilities" - rate of return (ROR) regulation - aggregate revenues are determined on a "cost plus" basis. That is, the utility is entitled to be reimbursed for its ongoing operating costs and for the depreciation of its operating assets, and to be given an opportunity to set rates so as to generate a reasonable return (consistent with that which would be available for similar investments in competitive markets) on the net book value of its "rate base." ROR-type regulation is a central element of a "regulatory bargain" in which the community as a whole accepts substantially all of the business and financial risks attendant to the utility's investments, in return for which the utility is assured the ability to earn a fair return. If for whatever reason (including the entry of competition) the utility's revenues and

earnings erode to a point where it is no longer able to earn that "fair return," the utility may seek, and the regulator will typically allow, an increase in rates so as to recoup the shortfall. Regulators may also adopt and approve measures expressly designed to minimize the potential for such revenue erosion. For example, if a LEC is required to serve certain high-cost areas as part of its undertaking pursuant to the "regulatory bargain," the regulator will typically permit it to design its rate structure so as to recover any extraordinary costs either directly from the affected subscribers or generally by spreading it broadly across the entire customer base. If the entry of competition, under a policy expressly endorsed by the regulator, impairs the incumbent's ability to recover its costs under ROR regulation, it is reasonable for the regulator to adopt measures designed to maintain the LEC's overall earnings level.

But use of rate of return regulation is on the decline, particularly for the larger LECs, and may not be appropriate at all in a competitive local exchange marketplace. At the federal level, Tier 1 LECs have been subject to "price cap" incentive regulation since 1991.[31] Price cap and other forms of incentive regulation are now in effect or are pending in the majority of states. In some cases, these plans provide limited earnings flexibility; in others, there is no upper limit upon the level of LEC earnings. LECs have argued strongly for adoption of incentive regulation. They have asserted, specifically, that this new paradigm is made necessary by the onset of competition, and have made a direct link between their ability to compete effectively with new entrants and their ability to increase earnings above traditional ROR regulation levels. They have in fact argued that their earnings would be *constrained* by competition, obviating the need for explicit regulatory limits. LEC shareholders clearly believe that the opportunities available through incentive regulation are far in excess of any competitive exposure that the LECs may now be facing: since the break-up of the former Bell System in 1984, the market-to-book value ratios for each of the seven RBHCs has been steadily growing, *despite consistently poor performance of most non-LEC business initiatives of these companies* (see figure).

[31] *In the Matter of Policy and Rules Concerning Rates for Dominant Carriers*, FCC Docket No. 87-313, *Second Report and Order*, October 4, 1990.



Firms subject to incentive regulation are provided with both the tools and the opportunities to respond to and mitigate the financial impact of competitive inroads. Firms subject to incentive regulation are expressly expected to accept and to accommodate risks and costs from which ROR-regulated firms are largely insulated. Flexibility in pricing the range of service offerings and ease of offering new services are the LEC's principal tools for accommodating the effects of competition.[32] And as reflected in investor evaluations of such firms' equity securities, firms

[32] ROR-regulated firms are by definition assured the ability to earn a fair return on their investment and to be protected against confiscation of their property. As such, smaller LECs that are, for the present, likely to remain subject to ROR regulation, are entitled to support for high-cost exchanges when the presence of competition or other factors make it impossible for them to cover these costs through their rate design. When a LEC becomes subject to some form of incentive regulation, on the other hand, it is provided with ample flexibilities and earnings opportunities to permit such funding internally, and no additional, explicit support should be necessary. In its May 18, 1995 Draft Report on Universal Service Issues in New York PSC Case 94-C-0095, the PSC Staff proposed a similar distinction in treatment of LECs subject to incentive regulation (specifically, New York Telephone and Rochester Telephone) and other, smaller LECs that continue to be regulated on the basis of rate of return. Indeed, the two incentive regulation LECs appear also to agree. As the Staff notes (at 49), "[b]oth NYT and RTC commented that, to the extent that they are engaged in long term incentive plans, the

subject to incentive regulation are seen as confronting an array of business opportunities that is more than sufficient to overcome any negative impacts of competition, including erosion of support, rate rebalancing and rate deaveraging, and even competitive "cream skimming" if and to the extent it actually takes place.[33] Thus, as a threshold matter, only ROR-regulated LECs should be eligible to draw funds to support individual high-cost exchanges as determined by a bidding process as described below.

In those limited instances where high cost support may be warranted, an objective determination should be made of the necessity for and degree of universal service support that is legitimately needed

As an initial matter, the burden resides squarely with a LEC to demonstrate that any particular "area" actually requires universal service support,[34] i.e., to demonstrate that a given area is so costly to serve that, absent support, basic rates would exceed the affordability threshold. Rather than rely upon LECs' claims of "high costs" to serve particular regions or often unverifiable LEC-created "cost of service" studies, policymakers should independently evaluate *whether* an area truly merits high cost support, and, if so, the *degree* of high cost support actually required to achieve universal service goals. This can be accomplished through a two-step process:

Step 1: Conduct an objective analysis of the costs of the particular area based upon its physical characteristics and on that basis develop "cost proxies" that would established "normal" or "expected" cost levels for areas with the specified geographic and density attributes.

Step 2: Initiate a bidding process to determine the "fair market value" of serving the area.

These steps are described below.

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applicability of a universal service fund for their companies should be limited to a targeted social responsibility fund." Footnote omitted.

[33] Investor evaluations of LEC securities consider both intrastate and *interstate* earnings, even though state-regulated local rates may be linked solely to *intrastate* cost levels. A dominant LEC with high interstate earnings should not be permitted to exclude this profit component from consideration when potential eligibility for universal service support is considered, in light of the adoption of incentive (price cap) type regulation at the federal level coupled with the fundamentally arbitrary system of jurisdictional cost separation to which the LECs are subject. High interstate and low intrastate earnings may well be the *effect* of jurisdictional misallocation, rather than the result of any competitive impact.

[34] An "area" for this purpose should be a geographic unit that can be efficiently served using conventional switching, distribution and transport technology, and must bear some reasonable relationship to an efficient serving plan and network architecture. In general, such an "economic service area" ("ESA") will be no smaller in extent than a wire center district, and no larger than a county.

Objective analysis of the characteristics of the area: Under the present federal high cost process - which should not be replicated at the state level, and which the FCC is in the process of revising at the federal level[35] - the FCC relies upon LECs' *reported* costs in order to determine whether assistance is warranted.[36] As the Commission has itself now recognized,[37] the significant drawback to this approach is that it creates absolutely no incentive for a LEC to control or to reduce its costs, nor does it provide any objective information as to what the costs associated with serving the area would be if served by an efficient provider. This approach to identifying high-cost areas on the basis of data supplied by the LECs themselves should be abandoned and replaced with (or at a minimum supplemented by) an objective assessment of the costs of serving allegedly "high cost" areas.[38] This can be accomplished through the development of standardized "cost proxies" based upon an analysis of threshold attributes that have nothing to do with the provider of the service but rather deal with the unique, independently verifiable physical characteristics of the area in question. Such an analysis would reveal attributes of the area over which the LEC had no control, e.g., low population density; rough, swampy, or mountainous terrain; or severe meteorological conditions. Cost proxies would be developed to reflect varying types of physical conditions, and LECs would be required to submit data that demonstrated that any particular area satisfied the benchmark cost conditions. The LEC data would be subject to an FCC engineering review board, with an option for a LEC to make a special case for extenuating circumstances.[39]

Translation of objective data (e.g., the physical characteristics of the putatively "high cost" territories in question) into calculations of the levels of universal service support needed (if any) for such areas (the "cost proxies"), should be based upon analytic modelling utilizing comprehensive regression analysis of the relevant data for a broad range of service territories. For example, the dependent variable in such a regression analysis would be the cost per loop of serving a particular area, and the independent variables would include objective data such as the area's physical characteristics (e.g., the terrain, population density, and weather). The purpose of creating a

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[35] *In the Matter of Amendment of Part 36 of the Commission's Rules and Establishment of a Joint Board*, FCC Docket No. 80-286, *Notice of Proposed Rulemaking and Notice of Inquiry*, July 13, 1995.

[36] The interstate Universal Service Fund, which was adopted by the FCC in 1984, provides assistance to LECs serving customers in areas where the cost to provide local exchange loops exceeds 115% of the nationwide average loop cost for all LECs.

[37] *Op. cit.*, footnote 32, at para. 37.

[38] Analysis of existing FCC data, as currently offered by the LECs, shows that it is inadequate to the task of assessing the true cost characteristics of telephone service at an appropriate geographic level. In its comments on the recent FCC NPRM in Docket No. 80-286, Time Warner will propose alternative data reporting formats, more likely to enable the Commission to identify truly high-cost areas.

[39] To do so, the LEC would have to both prepare its own cost study and demonstrate that the conditions under which it operates are sufficiently unique that they cannot be adequately captured in the cost proxies.

regression model would be to derive objective weighting factors for the variables that influence the cost of serving particular areas.[40]

Bidding process to determine the "fair market value" of providing support: In order to qualify for high cost support, the cost proxies for the candidate exchange must exceed the "affordability threshold" for that jurisdiction. If that condition is satisfied, the exchange would be put up for competitive bidding, with bids accepted from the incumbent LEC as well as from any other certificated local exchange service provider wishing to participate. The purpose of competitive bidding for high cost support is to assure that designated high cost areas are served in the most economically efficient manner possible.

Even where an exchange exhibits relatively high cost, the nature of the specific community and spending patterns of its inhabitants may make the area attractive even if less than all, or even none, of the potential high cost support is provided. Hence, a bidding process can also help to screen areas that are proffered as requiring high costs to serve *and* that also represent low revenue sources, from those areas that require high costs to serve but which represent sufficiently high offsetting revenue sources that high cost support may not be needed. While there may be a (transitional) need for society to subsidize the provision of basic telecommunications services to the former, financially unattractive areas, it may be unnecessary to subsidize the latter, potentially financially attractive area (or, at a minimum, the level of support that is required should be less). The goal should be to establish a process that can differentiate between these two scenarios.

In any instance where an incumbent LEC seeks to draw from a high cost fund, the alleged high cost area would have to be put out for bid to all potential providers. In order for the bidding process to be efficient and fair, however, full disclosure by the incumbent carrier of the market characteristics would be essential. Absent such full disclosure of information about the costs and revenues associated with serving a particular area, the incumbent would enjoy an unfair advantage in the bidding process. Examples of the kinds of information that should be disclosed fully by the incumbent to all participants in the bidding process include the average monthly revenues per customer (including revenue from vertical services), the demand characteristics of the customers (e.g., the quantities of local and toll usage, the demand for vertical services such as call waiting, the numbers of residence and business customers, the density of the area, etc.). It is essential that complete and comprehensive information be revealed so that all potential providers can bid with the same information, thereby avoiding market distortions in the bidding process.

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[40] This would be similar to the approach adopted by the FCC to set "price benchmarks" under its cable television rate regulation program. *In the Matter of Implementation of Sections of the Cable Television Consumer Protection and Competition Act of 1992, Rate Regulation*, MM Docket 92-266, *Report and Order and Further Notice of Proposed Rulemaking*, 58 Fed. Reg. 29736, May 3, 1995. Unlike the case of cable, where the benchmarks were applied broadly across a wide range of systems and sizes, the LEC cost proxies would apply only with respect to establishing *eligibility* for high-cost support.

The provider requiring the least support to offer basic residence local exchange services to the area at a pre-specified rate and pre-specified quality of service would obtain an *exclusive* right to receive the high-cost support for a specified number of years.[41] This process would ensure an economically efficient outcome, since society would be assured that, in those instances where high-cost fund support is warranted, such support would be provided at the least cost. Absent the bidding process, the calculation of the high-cost relief would likely be based upon some form of an incumbent's *reported* costs, an arrangement that does not create an incentive for LECs to minimize their costs of serving these areas.

Absent an affirmative showing of extenuating circumstances, the cost proxy for the subject exchange would set the ceiling for the bidding. The purpose of the ceiling is to protect the high-cost fund from the possibility that no bidder other than the LEC will participate in the auction.[42] Only the winning bidder, whether it be the incumbent or another carrier, would receive financial support for serving the designated high cost area. Presumably, if the incumbent does not win the bid (i.e., the incumbent requires greater high cost support than does the winning bidder), the incumbent would not be able to afford to serve the area at all, because the level of universal service support established by the bidding process would necessarily be less than what the incumbent asserted (through its bid) that it required. In the face of a lower bid from another carrier, and the possibility of receiving no support at all, *the incumbent may be forced to exit the market*, a consequence which creates a compelling incentive for the incumbent to bid no more support than it actually requires. The consequence of an incumbent exaggerating its need for high cost support is potentially the loss of the entire market - this consequence thus creates substantial pressure on the incumbent to accurately portray its need (if any) for high cost support.

Moreover, the incumbent carrier should not be allowed to abandon its carrier of last resort responsibilities *unless* a new entrant wins the bid to serve the area (or unless it seeks and obtains regulatory approval to exit a particular market). Only in those limited circumstances should an incumbent carrier be allowed to relinquish its carrier of last resort responsibilities. At that time, the incumbent may choose to negotiate the sale of its infrastructure to the winning bidder.

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[41] We have identified reasons for excluding price cap companies from any high-cost support. However, if policymakers determine that certain exchanges within such companies warrant high-cost support, the bidding process should result in a loss of the incumbent price cap LEC's right to serve the area at all if the bid is lost to another provider. This is justified because the larger companies, most if not all of which will be under price cap regulation, can utilize their considerable market power and economies of scale in their non-high cost areas to cross-subsidize the high-cost exchange(s). This would effectively preclude the winning bidder, which may be starting with little, if any market share, from gaining a foothold in the area even with the exclusive right to high-cost support.

[42] In such a circumstance, the cost proxy would take on the role of the "competitive outcome," in the absence of actual competitive bids.

In no instance should an incumbent be allowed to unilaterally decide to exit a market. Its exit from the market should result either because (1) it lost the bid for support and can no longer economically serve an area or (2) it sought and received permission under existing regulatory procedures to exit the market.

Universal service funding should not be used to enable incumbent LECs to recover "stranded investment" whose existence they seek to attribute to the entry of local competition

In addition to the competitive "cream-skimming" claims advanced by incumbent LECs to bolster their warnings about the threat to universal service, they also argue that the potential loss of market share to competing local carriers will reduce occupancy/utilization of their subscriber outside plant and other elements of the embedded infrastructure and, as a consequence, make it more difficult for them to be assured of recovery of their investment. The foundation of this argument is the LECs' contention that the subject assets were acquired in order to satisfy franchise or "Carrier of Last Resort" obligations, and were sized based upon an expectation of continued monopoly provision of local services. As the incumbents see it, if competition is permitted to enter the local market, the LECs must somehow be "made whole" with respect to the recovery of this investment.

LECs describe investment in assets that are no longer utilized and for which recovery can no longer be achieved as "stranded" - implying that it becomes effectively abandoned as an economic matter. It is not uncommon for incumbent LECs to seek universal service support in order to recover through amortization the depreciation reserve deficiency they contend has arisen in part due to the stranded investment problem. An incumbent may contend that a portion of its current cost levels reflect the cost of past obligations to provide universal service, and that LECs have not been able to choose how they would recover the cost of their investments over time as would a competitive firm.[43] Therefore, the incumbent seeks authority to amortize over a transition period what it considers the underdepreciated portion of its past investments.

The factual predicate to this argument is highly questionable, because incumbent LECs have failed to demonstrate that any reserve deficiency that may exist is related to their historical obligations. In fact, there is a strong likelihood that any reserve deficiency is the result of the LECs' pursuit of new competitive services which are causing them to replace existing plant sooner than they otherwise would. The argument seems implausible, in that the LEC's historical monopoly position should have worked to reduce the risk of plant obsolescence and underutilization; unlike firms operating in a competitive market, incumbent LECs were all but guaranteed recovery of their investments and did not face any risk of serious competitive losses.

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[43] *See, e.g.,* testimony of Dennis Weller for GTE-Hawaiian Tel, Hawaii PUC Docket No. 7702 (March 24, 1995), at 32-33.

In its second telecommunications policy white paper, *"Stranded Investment" and the "New Regulatory Bargain,"* Time Warner demonstrates that the source of the "problem," if and to the extent it is present at all, is largely the failure of LEC management to accurately forecast the rate of technological obsolescence of plant at the time of its acquisition and the pace and nature of evolving customer demand, and to correctly assess the impact of competitive entry upon plant capacity requirements and construction programs. As such, responsibility for non-performing investments lie with, and should be borne by, the LEC's managers and owners - certainly not by its customers and competitors. In any event, there is no relationship whatever between this issue and universal service, and policymakers should reject LEC attempts to link them.

V. Funding and distribution of universal service support

Responsibility for funding universal service should be broadly shared

At the interstate level and under existing policy and practice, support for universal service comes primarily through the Carrier Common Line Charge (CCLC) and the Residual Interconnection Charge (RIC) that is applied to all switched carrier access minutes of use. Certain additional funding comes from other interstate services that are provided directly by LECs, for example, intraLATA and "corridor" interstate toll services for which the CCLC is (presumably) imputed. The CCLC (and other existing funding mechanisms) support three principal forms of universal service funding:

(1) A general, non-targeted support for local exchange access where the interstate end user "Subscriber Line Charge" (SLC) is not sufficient to recover the interstate-assigned portion of the non-traffic-sensitive (NTS) costs of basic access. At the present time, the residential/single line business SLC is "capped" at $3.50 and the multiline business SLC is "capped" at $6.00, so any cost in excess of those levels is recovered by the LEC through the CCLC.

(2) A targeted, income-based "lifeline" subsidy that provides discounted SLC and installation charges ("Link-up America") to qualifying low-income residential subscribers.

(3) A targeted "high cost fund" that provides financial support to LECs whose average per-subscriber cost (as determined by the LEC's own cost studies) exceeds some threshold level. The "high cost fund" is supported directly by interexchange carriers based upon each's respective number of presubscribed lines.

The aggregate level of universal service funding that is provided by the CCLC and the RIC is far in excess of that which is reasonably needed to assure universal connectivity, and so must be reduced - and by a not insubstantial amount. At a minimum, with residential penetration rates running well into the mid- to high-90% range, there seems little basis for the first of these three support programs. The general, *untargeted* support mechanism helped to achieve the high rates of penetration that now prevail in the United States, but as evidenced by the data described below, this device is no longer required in order to *maintain* these penetration rates. As previously noted, tracking studies undertaken by the FCC and others since the onset of the interstate Subscriber Line Charge (SLC) have confirmed that network drop-off due to the increased monthly price of residential access did not materialize as many opponents of the SLC had predicted.[44] Increasing the SLC will create a better alignment between end user monthly rates and the non-traffic-sensitive costs of providing end user access, while at the same time permitting exchange access services to be priced more closely in line with incremental traffic-sensitive costs. Based on the reasoning set forth below, it would be appropriate to eliminate the interstate Carrier Common Line Charge and to implement a commensurate increase in the Subscriber Line Charge. The modest increase in the Subscriber Line Charge that would occur is unlikely to have any effect on universal service and the rate restructuring would be more compatible with the evolution of a competitive market.

While there may no longer be a justification for a general support mechanism, the continuing need for *at least some minimal level of support* in the second and third categories is not disputed, although the dollar amount is. Whatever its magnitude, however, the CCLC-based funding mechanism that provides even this targeted low-income/high-cost support disproportionately impacts interexchange carriers and those who utilize their services, while actually providing a net subsidy to LEC services for which nascent competition may only now be emerging. Indeed, it has long been argued that the use of CCLC-generated funds to cross-subsidize LEC basic exchange access has contributed to the extraordinarily low pace of technological innovation and competitive development in this area. At the same time, because the CCLC, RIC, and other contribution elements are relied upon almost entirely as the source of universal service funding, interexchange carriers must include this (economic equivalent of a) tax in prices for their services, which has likely suppressed the use of the interexchange carriers' public switched networks over what it would otherwise have been.

New local service providers, "competitive access providers," and others are in fact being required to compete against the incumbent LECs' local services many of which are *net recipients of a subsidy from the CCLC*. These entities do not, at present, typically make direct contributions toward universal service funding themselves, but the incumbent LECs, despite their own competitive advantage arising from the CCLC subsidy, are demanding that competing local service

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[44] In November of 1994, 93.8% of U.S. households had telephone service. This compares to 91.4% in November of 1983. *Monitoring Report*, Staff of the Federal-State Joint Board, CC Docket No. 80-286, May 1995, Table 1.1.

providers be subjected to universal service funding as a precondition for mutual compensation and other needed inter-carrier arrangements.

General universal service support, to the extent it is required at all, should be based upon a "value-added" assessment on all industry participants

Because the existing universal service funding mechanism(s) is(are) specified in terms of specific services and service elements (e.g., switched access minutes of use), it is difficult to apply a uniform and consistent funding burden fairly across all providers. If a provider does not utilize LEC interstate switched access minutes, that provider does not contribute to the prevailing universal service funding process. Such service-specific funding schemes create economic distortions that can lead both to inefficient choices among alternative service strategies (e.g., the use of dedicated access rather than switched access) and among competing service providers (e.g., an inefficient service provider that is not subject to a universal service contribution might be selected over a more efficient incumbent that is required to make such contributions and to recover their cost through its prices).

These disparities and inconsistent treatments can be overcome under a funding approach that would impose a uniform percentage contribution based upon the *value added* by each industry participant. "Value added" is defined for this purpose as the total gross revenues of the provider minus payments made to other telecommunications providers for services that are themselves included within the aggregate "value added" funding base. Under this approach, the total universal service funding "budget" or "contribution requirement" would be divided by the total industry-wide "value added" product to produce a "contribution rate." That contribution rate would, in turn, be applied to each industry participant on the basis of its respective value added.

> Consider the following example. Suppose that gross industry revenues for common carrier services furnished by all LECs, IXCs, CAPs, CLECs, cellular/PCS carriers and other wireless service providers amount to $200-billion annually. Suppose that the aggregate universal service funding budget or burden is determined to be $2-billion annually. Dividing the latter by the former, we get a contribution rate of 1.0%.
>
> Now, suppose that a particular LEC has gross revenues of $10-billion and does not purchase any qualifying service from any other USF-participating carrier. In that event, the LEC's USF contribution obligation would be $100-million (i.e., 1% of $10-billion).

Since the USF contribution is directly revenue-related, it would be recovered by that LEC as a uniform surcharge on all of the LEC's qualifying services.[45]

An IXC has gross revenues of $20-billion from common carrier services, but pays $8-billion to LECs, $200-million to CAPs, $60-million to cellular/wireless carriers, and $20-million to CLECs, which payments include those entities' respective recovery of their own USF contribution. In this case, the IXC's value-added is $11.72-billion, which would imply a USF payment obligation of $172-million.

A CLEC has gross revenues of $100-million, but pays $30-million to LECs (for interconnection and for services which the CLEC resells) and $10-million to CAPs (for various transport facilities). The CLEC's value-added is thus $60-million, implying a USF payment obligation of $600,000.

Payments made to the Universal Service Fund itself would also be deductible from the value-added calculation; similarly, monies drawn from the USF would be included within the gross revenues of the recipient entity.[46] Thus, assuming that the USF clears to zero in each accounting period, the transfer of USF funds from payor to payee would not affect the gross industry value-added amount.

The distribution of universal service funds should be competitively neutral

The emergence of a multi-provider, competitive local telecommunications environment requires, whatever universal service funding mechanism is ultimately adopted, that it be neutrally administered and that monies accumulated through the funding mechanism be available on a nondiscriminatory basis to all potential local service carriers.

Lifeline

Income-targeted "lifeline" type support must be "portable" with respect to the customer's choice of service provider. Any customer that is eligible to receive a lifeline subsidy should be

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[45] In general, "qualifying services" would consist of common carrier services regulated either at the state or federal level, including all sources of "above the line" revenues. Nonregulated services that do not constitute common carrier telecommunications and which would not require a certificate of public convenience and necessity (CPCN) if provided by a non-LEC entity would not be considered as "qualifying services."

[46] Alternatively payments made to the Universal Service Fund itself would not be deductible from the value-added calculation, but monies drawn from the USF would also not be included within the gross revenues of the recipient entity. Either approach would be internally consistent, and would result in "clearing" the universal service funding mechanism.

permitted to apply that subsidy to any qualifying local "dial tone" service that is available at the customer's location. This would imply a requirement that such subsidies be made explicit and that they be stated in terms of specific dollar amounts rather than as percentage "discounts" off the regular price of the service. The use of such explicit dollar lifeline subsidies has been adopted in some jurisdictions. For example, in Massachusetts, qualifying customers receive a fixed $6 discount off their monthly residential rate, irrespective of which class of exchange service (i.e., measured, local flat, metropolitan flat) they select.[47]

This method of providing universal service eliminates any need to require that all local carriers commit to a specific level of lifeline service. Rather, those carriers that serve a below-average proportion of lifeline customers will simply be net contributors to the lifeline fund; those who serve a disproportionately high share will be net recipients of such funding. The cost of providing a subsidy for qualifying recipients, of course, would be included in the universal service budget referred to in the above examples.

Funding the winner of a competitive bid for designated "high-cost" areas

Where an exchange qualifies for high cost support - i.e., where the cost proxy for the exchange exceeds the affordability threshold for the jurisdiction and where the incumbent seeks to receive such support - a competitive bidding process will be initiated. Only the winning bidder would be eligible to receive high cost support, and would be paid the requisite amount by the fund administrator.

If the incumbent is not the low bidder and hence does not qualify for high cost support, it may nevertheless continue to provide service in the exchange area on a non-subsidized basis.[48] Similarly, other carriers are also permitted to enter the market and provide service, but will not be eligible for support.

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[47] The $6 discount includes $3.50 for the Subscriber Line Charge and $2.50 of residential exchange service reduction. DPU-Mass-No.10, Exchange and Network Services, Part A, Section 1, 4th. revised page 11.1, effective June 11, 1995.

[48] Note, however, that the incumbent will still be required to adhere to applicable antitrust laws regarding predatory below-cost pricing of its services. Suppose, for example, that the incumbent asserts (through its bid) a need for $20 per month per subscriber in high cost support and loses the bid to another provider. If it continues to offer service in the exchange at the same price but without the (ostensibly needed) $20 subsidy, the winning carrier might well have a basis to claim that the incumbent is pricing below cost so as to force the winning bidder out of the market. While this may not be a *regulatory* issue *per se*, the potential for such behavior on the part of the incumbent which, upon losing the bid, will possess an extensive service production/delivery capable whose costs are, at that point, largely sunk, does imply a commitment to strictly enforce the applicable antitrust laws and principles.

VI. Summary of Recommendations

Incumbent telecommunications monopolies have been raising concerns about the impact of competition upon universal service - and warning of its imminent demise - for at least three decades. Despite these often-repeated admonitions and scare-tactics, penetration rates are up, usage of both local and long distance services is up, and basic telephone service is more affordable today that at any time in the past. By any reasonable measure, universal service has been achieved in the United States, and its preservation is not jeopardized by further erosion of the telecommunications monopolies.

Although universal service is and should remain a central focus of US telecommunications policy, resolution of all pending universal service issues and concerns should not be allowed to slow or complicate the development of an effectively competitive local telecommunications market. LEC shareholders clearly do not see LEC claims as to the adverse financial consequences of competition as representing anything more than regulatory posturing, and such dire predictions deserve no more credence among regulators than among investors.

In this paper, we have outlined a program to both minimize the extent to which explicit universal service support will be needed and to provide a process for obtaining such support in the most efficient, competitively neutral manner. In time, the need for such funding should diminish as competition and technology work to bring affordable local telephone service to those parts of the country that are today subject to unusually high costs and rates. LEC concerns, to the extent that they have any legitimacy at all, are at best transitional, and must be addressed with the "end state" clearly in sight.